

CLAIMS

That which is claimed is:

1. An article of footwear having an upper and a sole structure secured to the upper, at least a portion of the upper comprising:
 - a substrate layer formed of an air-permeable material; and
 - a web layer defining a plurality of apertures that expose portions of the substrate layer, the web layer being formed of a polymer material that infiltrates the substrate layer and is thereby secured to the substrate layer.
2. The article of footwear recited in claim 1, wherein the substrate layer is a textile.
3. The article of footwear recited in claim 1, wherein the substrate layer is a mesh material.
4. The article of footwear recited in claim 3, wherein the mesh material includes two spaced textile layers interconnected by a plurality of connecting fibers.
5. The article of footwear recited in claim 1, wherein the web layer forms an exterior surface of the upper.
6. The article of footwear recited in claim 5, wherein the web layer forms at least a portion of a toe region of the upper.
7. The article of footwear recited in claim 5, wherein the web layer forms at least a portion of a lateral region of the upper.
8. The article of footwear recited in claim 5, wherein the web layer has a stepped configuration that forms a plurality of ridges positioned on the exterior surface.
9. The article of footwear recited in claim 8, wherein the ridges extend between adjacent apertures.

10. The article of footwear recited in claim 8, wherein at least a portion of the ridges are positioned on a lateral region of the footwear.
11. The article of footwear recited in claim 1, wherein the web layer is formed of a thermoset polyurethane material.
12. The article of footwear recited in claim 1, wherein the web layer is formed through a casting process.
13. The article of footwear recited in claim 12, wherein the casting process includes placing a polymer resin into a mold such that the polymer resin infiltrates the substrate layer.
14. The article of footwear recited in claim 1, wherein the polymer material is absent from areas of the substrate layer that correspond with positions of the apertures.
15. A method of manufacturing an article of footwear, the method comprising steps of:
casting a polymer resin to form a web layer that defines a plurality of apertures;
infiltrating a substrate layer with a portion of the polymer resin to secure the web layer to the substrate layer, portions of the substrate layer being exposed though the apertures; and
incorporating the web layer and the substrate layer into the article of footwear.
16. The method recited in claim 15, wherein the step of casting includes placing the polymer resin into a mold with a shape that corresponds with the web layer.
17. The method recited in claim 15, wherein the step of casting includes forming a stepped configuration with a plurality of ridges in the web layer.
18. The method recited in claim 17, wherein the step of casting further includes positioning the ridges to extend between adjacent apertures.

19. The method recited in claim 15, wherein the step of casting includes forming the apertures to have varying shapes.
20. The method recited in claim 15, wherein the step of infiltrating includes placing the substrate layer into contact with the polymer resin.
21. The method recited in claim 20, wherein the step of infiltrating further includes compressing the substrate layer and the polymer resin to induce the polymer resin to enter the substrate layer.
22. The method recited in claim 15, wherein the step of infiltrating includes selecting the substrate layer to be a mesh material.
23. The method recited in claim 22, wherein the step of infiltrating further includes configuring the mesh material to have two spaced textile layers interconnected by a plurality of connecting fibers.
24. The method recited in claim 15, wherein the step of incorporating includes forming a portion of an upper of the footwear from the web layer and the substrate layer.
25. The method recited in claim 24, wherein the step of incorporating further includes forming at least one of a toe area and a lateral side of the upper from the web layer and the substrate layer.
26. The method recited in claim 24, wherein the step of incorporating further includes positioning the web layer on an exterior of the upper.
27. An article of footwear having an upper and a sole structure secured to the upper, the upper comprising:
 - a textile layer formed of a plurality of fibers; and

a polymer layer that forms at least a portion of an exterior surface of the upper, the polymer layer defining a plurality of apertures that form a web layer and expose portions of the textile layer, and the polymer layer being formed of a polymer material that:

infiltrates a first area of the textile layer and extends around the fibers in the first area to secure the polymer layer to the textile layer, the first area corresponding with portions of the textile layer that are immediately adjacent the web layer, and

is absent from a second area of the textile layer, the second area corresponding with portions of the polymer layer that are immediately adjacent the apertures, and the second area being air-permeable to permit air transfer through the upper.

28. The article of footwear recited in claim 27, wherein the textile layer is two spaced layers interconnected by a plurality of connecting fibers.

29. The article of footwear recited in claim 27, wherein the polymer material is a thermoset polyurethane.

30. The article of footwear recited in claim 27, wherein the web layer forms a portion of at least one of a toe region and a lateral region of the upper.

31. The article of footwear recited in claim 27, wherein the polymer layer is formed through a casting process.

32. The article of footwear recited in claim 31, wherein the casting process includes placing a polymer resin into a mold such that the polymer resin infiltrates the textile layer.

33. The article of footwear recited in claim 27, wherein the web layer forms a plurality of ridges positioned on the exterior surface.

34. The article of footwear recited in claim 33, wherein at least a portion of the ridges are positioned on a lateral region of the upper.
35. A method of manufacturing an article of footwear, the method comprising steps of:
 - casting a polymer resin to form a polymer layer;
 - infiltrating a textile layer with a portion of the polymer resin to secure the polymer layer to the textile layer, the textile layer being formed a mesh material; and
 - incorporating the polymer layer and the substrate layer into the article of footwear.
36. The method recited in claim 35, wherein the step of casting includes placing the polymer resin into a mold with a shape that corresponds with the polymer layer.
37. The method recited in claim 36, wherein the step of casting further includes defining a plurality of apertures in the polymer layer to form a web structure.
38. The method recited in claim 37, wherein the step of casting further includes exposing portions of the textile layer through the apertures.
39. The method recited in claim 35, wherein the step of infiltrating further includes configuring the mesh material to have two spaced textile layers interconnected by a plurality of connecting fibers.
40. The method recited in claim 35, wherein the step of incorporating includes forming a portion of an upper of the footwear from the polymer layer and the textile layer.
41. An article of footwear having an upper and a sole structure secured to the upper, at least a portion of the upper comprising:
 - a textile layer formed of a mesh material; and
 - a polymer layer that exposes portions of the textile layer, the polymer layer being formed of a polymer material that infiltrates the textile layer and is thereby secured to the textile layer.

42. The article of footwear recited in claim 41, wherein the mesh material includes two spaced textile layers interconnected by a plurality of connecting fibers.

43. The article of footwear recited in claim 41, wherein the web layer forms an exterior surface of the upper.

44. The article of footwear recited in claim 41, wherein the web layer is formed of a thermoset polyurethane material.

45. The article of footwear recited in claim 41, wherein the web layer is formed through a casting process.

46. The article of footwear recited in claim 45, wherein the casting process includes placing a polymer resin into a mold such that the polymer resin infiltrates the substrate layer.

47. The article of footwear recited in claim 41, wherein the polymer layer defines a plurality of apertures that form a web structure.

48. The article of footwear recited in claim 47, wherein the polymer material is absent from areas of the textile layer that correspond with positions of the apertures.